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09/729,133	12/01/2000	Bruce Bryan	24729-105F	3075

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05/18/2005

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EXAMINER

PROUTY, REBECCA E

ART UNIT PAPER NUMBER

1652

DATE MAILED: 05/18/2005

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/729,133
Filing Date: December 01, 2000
Appellant(s): BRYAN, BRUCE

Lara A. Northrop
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/28/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

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Appellant's brief presents arguments relating to the objections to claims 9 and 11. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Prior Art of Record

5,246,631 Halbritter 9/1993

D.C. Prasher et al., "Primary Structure of the *Aequorea victoria* Green-Fluorescent Protein", Gene 111: 229-233 (1992).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 5, 8, 10, and 12-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Halbritter (US Patent 5,246,631) in view of Prasher et al. (Gene 111: 229-332. 1992, Reference TQ of Applicant's PTO-1449).

Halbritter disclose bubble making solutions comprising a chemical chemiluminescent generating system. They disclose that the bubble solution and one or more components of the chemiluminescent system should preferably be packaged separately and mixed just prior to use.

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Prasher et al. teach the *Aequorea victoria* green-fluorescent protein (GFP). Prasher et al. teach that this protein is highly fluorescent and stable even to a variety of harsh conditions including heat, extreme pH and chemical denaturants (page 230).

It is well known in the art that children's toys, such as bubble blowing products should be non-toxic and should preferably contain only biodegradable components such that after use they do not contribute to pollution of the environment. Therefore, it would have been obvious to one of ordinary skill in the art to use the green fluorescent protein of Prasher et al. as the fluorescent component in the bubble solution of Halbritter. One of skill in the art would have been motivated to do so as proteins are both non-toxic and biodegradable products and Prasher et al. teach that GFP is particularly stable under a variety of conditions making it ideal for use in a product which will include surfactants and that may be stored under a variety of conditions by consumers. Furthermore, as Halbritter teach that the light producing components should preferably be packaged separately and mixed just prior use, it would have been obvious to one of skilled in the art that the fluorescent component could be provided in a separate vehicle such as a water soluble capsule which could be added to the

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bubble solution at the time of use. This would be expected to prevent any degradation of the fluorescent component prior to use and would allow the consumer to choose on which occasions to add the fluorescent component to the bubble solution such that it could be saved only for those occasions in which the fluorescent effect is desired.

(10) Response to Argument

Appellants argue that in view of the lack of recognition by Halbritter that his disclosed preferred chemiluminescent agents were toxic and/or non-biodegradable that one of ordinary skill in the art would not have been motivated to use the fluorescent protein of Prasher et al. in the bubble compositions of Halbritter. This is not persuasive because the mere fact that there is a suitable solution to a problem in the art does not prevent the skilled artisan from searching for other solutions or making improvements to the available compositions. Having a wide range of suitable light producing materials, particularly materials which are non-toxic and biodegradable, to select from would have clearly been desirable to a skilled artisan given the disclosure of Halbritter as a skilled artisan would recognize that this would provide flexibility in the colors of light obtained as well as the range of additional components which

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could be included as different light producing materials would likely interact differently with the available bubble solutions. This is clearly apparent from the disclosure of Halbritter in column 2, lines 38-66 in which Halbritter state "The chemiluminescent agent can be added to a wide variety of bubble blowing solutions provided there is no deleterious reaction between the chemiluminescent agent and the bubble blowing solution" and "The chemiluminescent agent which is added to the bubble blowing solution in accordance with the present invention may be selected from a wide variety of light producing materials". As such Halbritter explicitly teach that other light producing agents can be used. While Halbritter do not explicitly suggest the protein of Prasher et al., his disclosure is clearly not limited to the use of only the preferred chemiluminescent agents. Furthermore, it is noted that appellants arguments that there would be no motivation to replace the chemiluminescent materials disclosed by Halbritter absent a teaching that the materials of Halbritter are toxic, non-biodegradable and/or an environmental pollutant appears to be in fact inconsistent with their statements in response to the First Office Action in parent application 08/597,274, filed 10/25/99 and the Supplemental Response therein filed 12/14/99 (copies of these responses are attached hereto for the

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convenience of the Board). In the parent application appellants stated on page 14 of the 10/25/99 response that "Rauhut teaches a two chamber apparatus for generating light by reacting a hydrogen peroxide with an oxalate compound in the presence of catalyst and fluoescer compound. The outer chamber is made of flexible material and the inner chamber is made of glass, which breaks when the outer chamber is bent, releasing its contents which are mixed and generate light" Appellants go on to state "Since Rende is directed to a toy squirt gun and **Rauhut is directed to an apparatus that contains corrosive chemicals**, there is no motivation to have introduced the chemiluminescence generating solutions of Rauhut into the toy of Rende." and "Furthermore, **hydrogen peroxides or other hydroperoxides are not chemicals that the ordinary skilled artisan would consider suitable for use in toys**, particularly toys in which a stream of the peroxide is going to be ejected from the toy gun prior to reacting.". On page 2 of their Supplemental Response of 12/14/99 in parent application 08/597,274 appellants stated "Also attached hereto, is a lightstick of the type described in Rauhut. The light stick is designed to provide light, such as in the event of emergencies, and are provided by hotels, for example, for such purpose. It is not a novelty item. The chemiluminescent light is obtained by the reaction of the

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hydrogen peroxide of the activator solution with the chemiluminescent composition which comprises the oxalate fluoescer and catalyst. Bending the flexible, light transmitting outer tube containing one chemiluminescent component breaks a frangible inner container holding a second component, allowing the substances to react, but to remain sealed inside the outer container. **The packaging states that contact with the skin should be avoided, and that the contents will stain."** The lightstick provided by appellants with this response is labeled with the CYALUME[®] trademark cited by Halbritter as the preferred chemiluminescent material of his bubble solution. As such appellants have previously argued on the record in the parent application that the preferred chemiluminescent materials of Halbritter were known in the art to be chemicals that the ordinary skilled artisan would not consider suitable for use in toys and clearly a skilled artisan would have been motivated to find other materials lacking these disadvantages. The protein of Prasher et al. clearly would provide such a material.

Appellants argue that Prasher et al. provides no explicit or implicit support for the examiner's statement that the GFP of Prasher et al. is ideal for use in a product which will include surfactants. However, Prasher et al. state on page 230 that

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"Biochemical properties of the Aequorea GFP show it to have unique structural properties. The fluorescent chromophore is stable to a variety of harsh conditions including heat, extreme pH, and chemical denaturants". As the detergents typically found in bubble solutions are well known chemical denaturants for many proteins, this teaching is particularly relevant. As disclosed by Halbritter the one condition for usefulness of a light producing material in the bubble solutions is that there be no deleterious reaction between the chemiluminescent agent and the bubble blowing solution (see column 2, lines 41-45). Thus the disclosure by Prasher et al. suggests that GFP would be likely to meet this one condition and the advantages of non-toxicity and biodegradability of its use over that of the chemiluminescent materials taught by Halbritter would have been obvious from the fact that the compound of Prasher et al. is a protein. Furthermore, it should be noted that the use of the protein of Prasher et al. as the light producing component of the bubble solution of Halbritter et al. would have the additional advantage that the fluorescence could be reactivated merely by exposing the bubbles to an additional source of light (of the correct wavelength of the absorption spectrum) as the GFP is not consumed by the light production while the fluorescence of the materials of Halbritter et al. can not be

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reactivated as the chemical reaction consumes the necessary components needed for light production.

Appellants argue that bioluminescent fluorescent proteins and chemiluminescent systems are distinct and that while one skilled in the art of chemiluminescent light generating systems would conceivably look within the class of other chemiluminescent generating systems for possible substitutes they would not look to the art of bioluminescent fluorescent proteins for possible substitutes for chemiluminescent materials. It should be noted that the paragraph of appellants brief including this argument (i.e., the paragraph at the top of page 5 of appellants brief) includes a factually incorrect statement. This will be noted first before addressing the actual argument. Appellants state "A bioluminescent system requires a bioluminescent fluorescent protein such as a luciferin, luciferase or a photoprotein". However, luciferin is not even a protein much less a bioluminescent fluorescent protein and luciferase is not a fluorescent protein. Luciferase is a enzyme which catalyzes the oxidation of luciferin. It is the oxyluciferin that is fluorescent not the luciferase. While both luciferase and luciferin can be components of bioluminescence generating systems (as disclosed in the specification) they are not within the scope of the phrase

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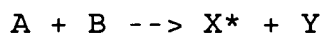
"bioluminescent fluorescent protein". The current claims recite bubble compositions comprising only bioluminescent fluorescent proteins not bubble compositions comprising any bioluminescence generating system. Examples of proteins encompassed within the phrase "bioluminescent fluorescent proteins" include those recited in claim 14 and those discussed on pages 58-62 of the specification but do not include luciferases or luciferins. Furthermore appellants quote from the specification at page 18, lines 14-16 found in this same paragraph while not factually incorrect is used in a misleading fashion as none of molecular oxygen, a luciferase or a luciferin are necessary for the production of fluorescence by GFP or many other bioluminescent fluorescent proteins. *In vivo* bioluminescent fluorescent proteins receive the energy necessary for excitation from a luciferase/oxyluciferin complex or an activated photoprotein produced by the oxidation of a luciferin (see page 229 of Prasher et al.), however, *in vitro*, as suggested herein, these proteins can be activated merely by absorption of energy from light of the correct wavelength. As such production of glowing bubbles as discussed in the instant rejection would merely require adding the GFP to the bubble composition and irradiating the composition with a light source producing light of a wavelength within the absorption spectrum of GFP. Returning to

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appellants argument that bioluminescent fluorescent proteins and chemiluminescent systems are distinct and that while one skilled in the art of chemiluminescent light generating systems would conceivably look within the class of other chemiluminescent generating systems for possible substitutes they would not look to the art of bioluminescent fluorescent proteins for possible substitutes for chemiluminescent materials, this is not found persuasive because both chemiluminescent systems and fluorescent proteins are known means of producing a luminescent effect as desired in the bubble toys disclosed in Halbritter. This is in fact evidenced in the first paragraph of the background of the invention section of the instant specification which states:

"Luminescence is a phenomenon in which energy is specifically channeled to a molecule to produce an excited state. Return to a lower energy state is accompanied by release of a photon (hv). **Luminescence includes fluorescence, phosphorescence, chemiluminescence and bioluminescence.**

Bioluminescence is the process by which living organisms emit light that is visible to other organisms. Luminescence may be represented as follows:



where X^* is an electronically excited molecule and $h\nu$ represents light emission upon return of X^* to a lower energy state. Where the luminescence is bioluminescence, creation of the excited state derives from an enzyme catalyzed reaction. The color of the emitted light in a bioluminescent (or chemiluminescent or other luminescent) reaction is characteristic of the excited molecule, and is independent from its

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source of excitation and temperature." [emphasis added]

As each of these materials are known means of producing luminescence, they are not non-analogous art and the skilled artisan would look to the art of fluorescent proteins for possible substitutes for chemiluminescent materials.

Furthermore it is noted that at least 2 prior art references cited in applicants IDS of 2/9/01 include passages that recite both bioluminescent and chemiluminescent systems as functional equivalents (see US Patent 5,383,100, column 6, lines 15-23 and US Patent 5,403,221 at column 4, lines 34-37) for use within novelty items.

Appellants further argue that often substances present in a chemiluminescent system are incompatible with the bioluminescent fluorescent proteins of bioluminescent systems. For example, the Halbritter reference teaches that the preferred chemiluminescent agent includes an oxalate diester which reacts with a peroxide and a fluorester to provide the emission of light and those skilled in the art would readily appreciate that the combination of peroxide with a bioluminescent system will greatly reduce, if not completely destroy, the biological light-emitting reaction. Accordingly, one skilled in the art would not replace the chemiluminescent system of Halbritter with a bioluminescent

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fluorescent protein. However, this is not persuasive because the rejection does not suggest replacing only the chemical compound which emits the light in the system of Halbritter but suggests replacing the **entire chemiluminescent system** (i.e., all of the oxalate diester, the peroxide and the fluorescer in the preferred embodiment of Halbritter) used with the bioluminescent fluorescent protein of Prasher et al. Under these circumstances no peroxide (or any other substances present in a chemiluminescent system which are incompatible with GFP) would be present. The rejection directly addressed the potential for undesirable interactions between the bubble solution itself and the protein of Prasher et al. However, in view of the disclosure of Prasher et al. with regards to the stability of GFP to chemical denaturants, the skilled artisan would have reasonably expected the protein of Prasher to be suitable for use in the bubble solutions. Appellants are reminded that a conclusion of obviousness does not require an absolute certainty of success but only a reasonable expectation thereof.

Appellants acknowledge that the phenomenon of luminescence, includes both chemiluminescence and bioluminescence but argue that these two processes are distinct and are not interchangeable. Appellants argue that the mechanisms involved in each system are entirely different with respect to the

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involved chemistry and mechanical process and therefore replacement of the chemistry and mechanisms present in a chemiluminescent system with the biological chemistry and biological materials present in bioluminescent system is not a simple substitution. Appellants argue that a novelty item comprising a chemiluminescent system would need to be entirely redesigned to include a bioluminescent system. This argument is not persuasive. While the examiner agrees that bioluminescent fluorescent proteins and chemiluminescent systems are different and that the chemistry involved in the generation of the fluorescence can vary widely between these systems (it is noted that the same is true for different chemiluminescent systems), the examiner disagrees that these differences would result in the replacement of one for the other being more than a simple substitution and would require that the bubble system be redesigned. Halbritter teaches that the glowing bubbles be produced simply by first mixing the chemiluminescent materials together to produce the chemiluminescent agent and then mixing the chemiluminescent agent with the bubble solution. Halbritter teach that the chemiluminescent agent can be produced from any of a wide variety of light producing materials. The rejection merely suggests replacing the chemiluminescent agent of Halbritter with the fluorescent protein of Prasher et al.

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Prasher teaches that GFP can be activated merely by excitation with light of the correct wavelength. As such replacing the chemiluminescent agent of Halbritter would be a simple substitution of the mixture of the oxalate diester, peroxide and fluorescer with a composition of the protein of Prasher et al. which had been illuminated with light of the correct wavelength. Either of these compositions would then be mixed with the bubble solution itself. What redesign would be necessary? The only difference in the bubble product produced and sold would be in the chemical composition of the chemiluminescent materials (i.e., a protein vs. the oxalate diester, peroxide and fluorescer) and the means by which the fluorescence is produced (i.e., mixing the oxalate diester, peroxide and fluorescer together vs. illuminating the protein with light). While it is possible that such a substitution of the protein of Prasher et al. for chemiluminescent materials of other known novelty items within the scope of the generic claims herein might require a substantial redesign of the product itself, for the elected and examined species of novelty item, i.e., bubble solutions, no such redesign is necessary.

For the above reasons, it is believed that the rejections should be sustained.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer however, copies of the responses of appellants in parent application 08/597,274 discussed in the response to argument section of this examiner's answer are provided herein.

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Respectfully submitted,



Rebecca E. Prouty
Primary Examiner
Art Unit 1652

RP

May 10, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bryan, B.

Serial No.: 08/597,274

Filed: February 6, 1996

For: *BIOLUMINESCENT NOVELTY
ITEMS*

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Examiner: Wax, R.

I hereby certify that this paper and the attached
papers are being deposited with the United States
Postal Service as first class mail in an envelope
addressed to:

Assistant Commissioner for Patents,
Washington, D.C. 20231, on this date.

10/21/99

Date

Stephanie Feldman

AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Responsive to the Office Action, mailed, April 21, 1999, please amend
the application as follows:

IN THE CLAIMS:

Please cancel claims 9-22, 24-34, 39-41, 45-48, 58, 61-63, 71, 72, 80-
159 and 177-182 without prejudice or disclaimer.

Please add claims 185-196 as follows:

~~185.~~ The combination of claim 1, wherein a component of the
system is selected from among bacterial, mushroom, dinoflagellate,
coelenterate, ctenophore, annelid, crustacea, ostracod, euphausiid copepod,
insect, oleopterid, diptera, echinoderm, chordate, tunicate and fish
bioluminescence generating systems.—

~~186.~~ The combination of claim 1, wherein a component of the
system is selected from among brittle star, sea cucumber, cartilaginous, bony
fish, ponyfish, flashlight fish, angler fish, midshipman fish, midwater fish
marine polychaetes, syllid fireworm, jellyfish, hydroid, sea pansy,
earthworm, mollusc, limpet, deep-sea fish, clam, firefly, click beetle, railroad
worms and squid bioluminescence generating systems.—

~~57~~
-187. The combination of claim 1, wherein a component of the system is selected from among *Cavarnularia*, *Ptilosarcus*, *Stylatula*, *Acanthoptilum*, *Parazoanthus*, *Chiroteuthis*, *Eucleoteuthis*, *Onychoteuthis*, *Watasenia*; cuttlefish, *Sepiolina*; *Oplophorus*, *Sergestes*, *Gnathophausia*, *Argyropelecus*, *Yarella*, *Diaphus*, and *Neoscopelus* bioluminescence generating systems. —

~~58~~
-188. The combination of claim 1, wherein a component of the system is selected from among bacterial, mushroom, dinoflagellate, coelenterate, ctenophore, annelid, crustacea, ostracod, euphausiid copepod, insect, oleopterid, diptera, echinoderm, chordate, tunicate and fish bioluminescence generating systems. —

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1
~~59~~
-189. The combination of claim 1, wherein a component of the system is selected from among brittle star, sea cucumber, cartilaginous, bony fish, ponyfish, flashlight fish, angler fish, midshipman fish, midwater fish marine polychaetes, syllid fireworm, jellyfish, hydroid, sea pansy, earthworm, mollusc, limpet, deep-sea fish, clam, firefly, click beetle, railroad worms and squid bioluminescence generating systems. —

~~60~~
-190. The combination of claim 1, wherein a component of the system is selected from among *Cavarnularia*, *Ptilosarcus*, *Stylatula*, *Acanthoptilum*, *Parazoanthus*, *Chiroteuthis*, *Eucleoteuthis*, *Onychoteuthis*, *Watasenia*; cuttlefish, *Sepiolina*; *Oplophorus*, *Sergestes*, *Gnathophausia*, *Argyropelecus*, *Yarella*, *Diaphus*, and *Neoscopelus* bioluminescence generating systems. —

~~61~~
-191. The toy gun of claim ~~54~~²⁰, wherein a component of the bioluminescence generating system is selected from among brittle star, sea cucumber, cartilaginous, bony fish, ponyfish, flashlight fish, angler fish, midshipman fish, midwater fish marine polychaetes, syllid fireworm, jellyfish, hydroid, sea pansy, earthworm, mollusc, limpet, deep-sea fish, clam, firefly, click beetle, railroad worms and squid bioluminescence generating systems. —

BRYAN

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~~62~~
- 182.

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The toy gun of claim 54, wherein a component of the bioluminescence generating system is selected from among *Cavarnularia*, *Ptilosarcus*, *Stylatula*, *Acanthoptilum*, *Parazoanthus*, *Chiroteuthis*, *Eucleoteuthis*, *Onychoteuthis*, *Watasenia*; cuttlefish, *Sepiolina*; *Oplophorus*, *Sergestes*, *Gnathophausia*, *Argyropelecus*, *Yarella*, *Diaphus*, and *Neoscopelus* bioluminescence generating systems. —

~~63~~
- 183.

The toy gun of claim 59, wherein a component of the bioluminescence generating system is selected from among brittle star, sea cucumber, cartilaginous, bony fish, ponyfish, flashlight fish, angler fish, midshipman fish, midwater fish marine polychaetes, syllid fireworm, jellyfish, hydroid, sea pansy, earthworm, mollusc, limpet, deep-sea fish, clam, firefly, click beetle, railroad worms and squid bioluminescence generating systems. —

~~64~~
- 184.

The toy gun of claim 59, wherein a component of the bioluminescence generating system is selected from among *Cavarnularia*, *Ptilosarcus*, *Stylatula*, *Acanthoptilum*, *Parazoanthus*, *Chiroteuthis*, *Eucleoteuthis*, *Onychoteuthis*, *Watasenia*; cuttlefish, *Sepiolina*; *Oplophorus*, *Sergestes*, *Gnathophausia*, *Argyropelecus*, *Yarella*, *Diaphus*, and *Neoscopelus* bioluminescence generating systems. —

~~65~~
- 185.

27
The toy gun of claim 66, wherein a component of the bioluminescence generating system is selected from among brittle star, sea cucumber, cartilaginous, bony fish, ponyfish, flashlight fish, angler fish, midshipman fish, midwater fish marine polychaetes, syllid fireworm, jellyfish, hydroid, sea pansy, earthworm, mollusc, limpet, deep-sea fish, clam, firefly, click beetle, railroad worms and squid bioluminescence generating systems. —

~~66~~
- 186.

27
The toy gun of claim 66, wherein a component of the bioluminescence generating system is selected from among *Cavarnularia*, *Ptilosarcus*, *Stylatula*, *Acanthoptilum*, *Parazoanthus*, *Chiroteuthis*, *Eucleoteuthis*, *Onychoteuthis*, *Watasenia*; cuttlefish, *Sepiolina*; *Oplophorus*, *Sergestes*,

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C1 *Gnathopausia, Argyropelecus, Yarella, Diaphus, and Neoscopelus*
bioluminescence generating systems.

Please amend claims 42, 59 and 173 as follows:

C2 13 42. (Amended) A kit, comprising:
an inanimate article of manufacture; [and]
a bioluminescence generating system; wherein
the article of manufacture and bioluminescence generating system
are packaged in the kit with instructions for combining the
article of manufacture with the bioluminescence generating system to
produce a novelty item.

C3 59. (Amended) A combination, comprising:
the toy gun of claim ~~58~~ 51; and
~~one or more components of a~~ bioluminescence generating system.

C4 ~~173~~ 53. The combination of claim 1, wherein the combination comprises
luciferase and a [luciferase] luciferin.

REMARKS

Any fees that may be due in connection with filing this paper or with this application may be charged to Deposit Account No. 08-1461. If a Petition for extension of time is required, this paper is to be considered such Petition, and any fee charged to Deposit Account No. 08-1641:

Attached hereto are:

an unexecuted DECLARATION pursuant to 37 C.F.R. § 1.131 with Exhibits 1-4; and

an unexecuted DECLARATION pursuant to 37 C.F.R. § 1.132 with attached video exhibit.

Claims 1-8, 23, 34-38, 42-44, 49-57, 60, 70, 73-79, 160-196 are presently pending in this application. Claims 58, 60-63, 71, 72, 134, 135 and 147-149 have been cancelled without prejudice or disclaimer, and claims 9-22,

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24-34, 39-41, 45-48, 80-133, 137-146, 150-159 and 177-182 have been cancelled without prejudice or disclaimer as being drawn to non-elected subject matter that has been withdrawn from consideration. Applicant reserves the right to file divisional and continuation applications to the cancelled subject matter.

Claims 186-196, which find basis in the specification as originally filed, have been added herein. For example, particular basis may be found on page 36 of specification and also in Table 1.

It is respectfully submitted that claims 23, 49 and 50, which were alleged to be withdrawn from consideration as being drawn to non-elected subject matter, read on the elected species. Each of these claims encompasses toys. The elected species is a toy. Accordingly, these claims have been retained and should be examined.

THE REJECTION OF CLAIMS 2, 42, 61-63, 71, 134, 135, 147-149 and 173 UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Claims 2, 42, 61-63, 71, 134, 135, 147-149 and 173 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention for various reasons. It is respectfully submitted that the grounds for this rejection are rendered moot with respect to claims 61-63, 71, 134, 135 and 147-149, which have been cancelled herein.

Claim 42 has been amended to specify that the items are packaged as a kit with instructions, thereby clearly distinguishing it from claim 2. The typographical error in claims 173 has been corrected.

THE REJECTION OF CLAIMS 7, 100, 101, 138-142, 144, 182-185 and 188-193 UNDER 35 U.S.C. §102(e)

Claims 1, 2, 6-8, 42, 66, 70 and 174-176 are rejected under 35 U.S.C. §102(e) as being anticipated by McAllister et al. Reconsideration of the grounds for this rejection is respectfully requested in view of DECLARATION under 37 C.F.R. §1.131 submitted herewith.

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The attached DECLARATION provides evidence that Dr. Bruce Bryan the inventor of the claims reduced subject matter within the scope of the claims to practice prior to the December 13, 1995 filing date of U.S. Patent No. 5,730,321, or, alternatively, conceived of the subject matter of the claims prior to this date and prior to the critical date engaged the services of the undersigned attorney who diligently drafted the patent application, which represents a constructive reduction to practice of the subject matter of the application.

In particular, the DECLARATION includes a letter from Dr. Bryan's assistant Ms. Abbie M. Crozier attesting to a reduction to practice prior to the December 13, 1995 filing date of McAllister *et al.* of the concept of combining a bioluminescence generating system in a squirt gun and squirting a glowing fluid. Also provided is correspondence from Sigma Chemical Corporation showing that Dr. Bryan established an account with Sigma prior to December 13, 1995. Dr. Bryan states that purpose of this account was to purchase luciferases and luciferins for use in developing his bioluminescent novelty items. Dr. Bryan was a practicing thoracic surgeon at that time, and did not order chemicals from Sigma in the ordinary course of his practice.

If the letter and correspondence with Sigma are not sufficient to evidence the actual reduction to practice, the DECLARATION also includes evidence of conception prior to the critical date and diligent effort to file an application until the date of filing of the application. The DECLARATION includes exhibits that show drawings (Exhibit 2) prepared before December 13, 1995, by Dr. Bryan of his squirt gun and then subsequently, but before December 13, 1995, by a draftsman (Exhibit 3).

Also included in the DECLARATION is an engagement letter (Exhibit 2) evidencing that Dr. Bryan retained the services of a patent firm prior to December 13, 1995. Also included is a Statement by the undersigned that from a date prior to December 13, 1995, either she or an associate worked on

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AMENDMENT

drafting the above-captioned application almost every business day until filing the application (Exhibit 4).

In view of this DECLARATION, McAllister *et al.* is not prior art to any of claims 1, 2, 6-8, 42, 66, 70 and 174-176.

THE REJECTION OF CLAIMS 1-8, 35-38, 42-44, 51-59, 60-79, 134, 135, 147-149, 160-176, 183 AND 184 UNDER 35 U.S.C. §103(a)

Claims 1-8, 35-38, 42-44, 51-59, 64-73, 134, 135, 147, 148, 160-176, 183 and 184

Claims 1-8, 35-38, 42-44, 51-59, 64-73, 134, 135, 147, 148, 160-176, 183 and 184 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rende in view of Rauhut and applicant's prior art admissions because Rende allegedly teaches a toy gun that shoots liquid from nozzles arranged so that the streams merge and collide. The example used is to dispense fluids of different colors but at column 2, lines 14-20, it states that combining the fluids could cause a chemical interaction and a change in the resulting blend the structure of the mechanism of the gun appears to be identical to that of instant figures 1-3. This reference is cited as an example of what is conventional structure of a toy gun designed to shoot liquids, and the Examiner urges that the specification states that toy guns that shoot liquids are conventional and widely known (citing, page 93, lines 4 and 5). Rauhut is alleged to teach a chemiluminescent liquid dispenser containing a flexible tube with one component of the chemiluminescent system and a frangible inner container holding a second component of the chemiluminescent system. The components are mixed, causing the reaction to occur Rauhut states that the luminescent reaction product may be dispensed and used as a luminescent marker. The Examiner urges that applicant allegedly admits throughout the specification that bioluminescent systems are known, including many systems comprising luciferase and luciferin.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use components

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of a bioluminescent system in Rende's toy gun with the expectation that the fluid streams would mix and generate bioluminescence. Motivation is allegedly provided by Rauhut's teaching of the conventionality of use of multi- component luminescent systems in amusement devices. Further motivation is provided by general knowledge in the art that bioluminescence is more versatile than chemiluminescence in that more colors are available and the intensity of the light is more easily regulatable. The precise structures of the toy guns in the claims are deemed to be design choices well within the ordinary level of skill in the art to make and thus are considered obvious as well.

This rejection is respectfully traversed with respect to claims 1-8, 35-38, 42-44, 51-57, 59, 64-70, 73, 134, 135, 160-176, 183 and 184. It is respectfully submitted that this rejection is moot with respect to claim 58, 71, 72, 134, 135, 147 and 148, which have been cancelled without prejudice or disclaimer.

The claims

Claim 1 is directed to a novelty item that is a combination of an article of manufacture; and a bioluminescence generating system; claim 2 specifies that the article of manufacture is inanimate and the combination contains one or more components of a bioluminescence generating system; claim 3 specifies that component or bioluminescence generating system comprises a luciferase, claim 4 that it comprises a luciferin; claim 5 that it comprises both; claim 6 and 7 specify a variety of items as selections for the article of manufacture is a toy gun.; claim 8 specifies that the article of manufacture is a toy gun; and claims 35-38 as well as claims 185-190 specify the source of a component of the bioluminescence generating system.

Claims 42-44 are kits that contain the combinations package with instructions for using the combinations. Claims 51 and 52 are directed to a toy gun that includes two chambers and a mixing chamber in contact with each of the other chambers; claim 53 is directed to the toy gun in combination with a

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bioluminescence generating system; claim 54 specifies that one chamber contains a composition comprising up to all except one component of a bioluminescence generating system, and the other chamber contains a composition comprising the remaining component(s); claim 55 and 56, and claims 191 and 192, specify the source of a component of the bioluminescence generating system, and claim 57 further defines the toy gun of claim 54; and claim 59 is directed to the toy gun of claim 57 in combination with a bioluminescence generating system; claim 64, 65, and 193 and 194 specify the source of a component of the bioluminescence generating system.

Claim 66 is directed to a toy gun in combination with a bioluminescence generating system; claim 66 and 67 specify the components; claim 68 specify the components are encapsulated, and claim 69 specifies that they are in the form of a powder or paste; claim 70 recites that the toy gun is a water gun; and claim 73 describes the water gun. Claims 195 and 196 specify the source of a components of the bioluminescence generating system. Claims 160-176, 183 and 184 specify various additional components of the combinations of claims 1 and 2 or define them further.

Teachings of the cited references and differences from the instant claims

Rende (U.S. Patent No. 4,765,510) describes a fluid discharging gun containing multiple chambers that is capable of dispensing fluids in streams of different colors and that has nozzles arranged so that the streams merge and collide. The gun includes a housing having a manually graspable handle, a plurality of fluid-containing chambers in the housing, the chambers containing fluids having different characteristics, and a plurality of laterally spaced nozzles mounted in the housing and pointing in the same general direction as each other. The nozzles are oriented so that their central axes intersect at a point which is a predetermined distance from the housing. The gun includes a trigger that forces fluid under pressure from the chambers, through conduits and out of

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the nozzles to form a plurality of fluid streams that intersect at a defined point outside the toy gun allowing the fluids to mix.

At col. 2, lines 14-20, noted by the Examiner Rende states:

the invention is applicable to dispensing fluids having different colors or characteristics other than colors, the characteristics being such that combining the fluids causes a chemical or physical interaction and a change in the resulting blend.

Rende and the noted language, does not suggest that the momentary interaction of the two streams of fluid would be sufficient to for any chemical reaction, and particularly a an enzymatically catalyzed bioluminescence generating reaction.

Rende does not teach or suggest including components of a bioluminescence generating system in the gun, nor modifying the design of the toy gun such that the components would mix and react to produce bioluminescence.

Rahaut (U.S. Patent No. 3,584,211) describes a device for providing chemiluminescent light from a chemical reaction of a solution of oxalate and fluorescer in the one container, typically the outer container, and a solution of a hydroperoxide compounds, such as hydrogen peroxide and catalyst in the other, typically the inner, container. The chemiluminescent light is obtained by the reaction of the hydrogen peroxide of the activator solution with the chemiluminescent composition which comprises the oxalate fluorescer and catalyst. Bending the flexible, light-transmitting outer tube containing one chemiluminescent component breaks a frangible inner container holding second component, allowing the substances to react.

Applicant's alleged admissions

The specification teaches that bioluminescence generating systems are known. The specification also teaches that these systems are typically used in analytical applications, such in diagnostic assays. No where in the specification does it suggest that the use of bioluminescence for generating light is known nor its use in toys.

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Examiner's statements of general knowledge in the art

The Examiner states that

[f]urther motivation is provided by general knowledge in the art that bioluminescence is more versatile than chemiluminescence in that more colors are available and the intensity of the light is more easily regulatable.

No support for this allegation is provided. MPEP 2144.03 states:

The Examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art. In re Ahlert, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). . . .

The properties ascribed by the Examiner to bioluminescence are not "capable of instant and unquestionable demonstration as being "well-known" in the art.

MPEP 2144.03 continues:

If justified, the examiner should not be obliged to spend time to produce documentary proof. If the knowledge is of such notorious character that official notice can be taken, it is sufficient so to state. In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942). If the applicant traverses such an assertion the examiner should cite areference in support of his or her position.

In this instance, knowledge about the properties of bioluminescence are not of such notorious character that official notice can be taken. Furthermore, bioluminescence and its use are of a more esoteric nature, since they typically used in analytical applications as reporters. For esoteric technology, MPEP 2144.03 states:

("[A]ssertions of technical facts in areas of esoteric technology must always be supported by citation of some reference work" and "allegations concerning specific 'knowledge' of the prior art, which might be peculiar to a particular art should also be supported." Furthermore the applicant must be given the opportunity to challenge the correctness of such assertions and allegations. **"The facts so noticed serve to 'fill the gaps' which might exist in the evidentiary showing" and should not comprise the principle evidence upon which a rejection is based.**). See also In re Barr, 444 F.2d 588, 170 USPQ 330 (CCPA 1971) (scientific journal references were not used as a basis for taking judicial notice that controverted phrases were art-recognized because the court was not sure that the meaning of the term at issue was indisputable among reasonable

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men); and *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of [judicial] notice.").

The Examiner is taking judicial notice of an allegation, which forms provides the link between the prior art citations, which do not mention bioluminescence and the motivation to use it.

The Examiner has failed to set forth a prima facie case of obviousness

Relevant law

In order to set forth a prima facie case of obviousness under 35 U.S.C. §103: (1) there must be some teaching, suggestion or incentive supporting the combination of cited references to produce the claimed invention (ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 329, 933 (Fed. Cir. 1984)) and (2) the combination of the cited references must actually teach or suggest the claimed invention. Further, that which is within the capabilities of one skilled in the art is not synonymous with that which is obvious. Ex parte Gerlach, 212 USPQ 471 (Bd. APP. 1980). Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art" In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981), but it cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination (ACS Hosp. Systems, Inc. v Montefiore Hosp. 732 F.2d 1572, 1577. 221 USPQ 329, 933 (Fed. Cir. 1984)). "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher" W.L. Gore & Associates, Inc. v. Garlock Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

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The prior art must provide a motivation whereby one of ordinary skill in the art would have been led to do that which the applicant has done. Stratoflex Inc. v Aeroquip Corp., 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed. Cir. 1983). In addition, the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification. In re Fritch, 23 USPQ 1783 (Fed. Cir. 1992).

Also, it is impermissible to ignore the advantages, properties, utilities and unexpected results that flow from the claimed invention; they are part of the invention as a whole. In re Sernaker, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983). Unexpected properties must always be considered when determining obviousness. A compound's structure and properties are inseparable so that unexpected properties are part of the subject matter as a whole. In re Papesh, 315 F.2d 381, 137 USPQ 43 (CCPA 1963).

There is not motivation to have combined the teachings of Rende and Rauhaut

Rende teaches a multiple color fluid dispensing gun in which fluids are dispensed separately through nozzles arranged so that the two streams collide and merge at a defined point so that the contents of the streams blend. Rende does not teach or suggest ejecting fluids that comprise portions of bioluminescence generating systems. Furthermore, Rende does not teach or suggest nor is it apparent that this intersection of fluids would be of sufficient duration to permit a bioluminescence generating reaction to occur to any extent.

As described in the instant application, embodiments in which the apparatus contains two chambers, the apparatus also includes a mixing chamber where the fluids mix prior to ejection not subsequent to ejection. There is not suggestion in Rende to modify its apparatus so that the fluids are mixed prior to ejection as is likely necessary to generate substantial bioluminescence.

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Rauhaut teaches a two chamber apparatus for generating light by reacting a hydrogen peroxide with an oxalate compound in the presence of catalyst and fluorescer compound. The outer chamber is made of flexible material and the inner chamber is made of glass, which breaks, when the outer chamber is bent, releasing its contents, which are mixed and generate light. The apparatus of Rauhaut is not a toy or novelty, but is a light generating device. There is no suggestion in Rauhaut that these materials should be introduced into a device that will spew them out. There is clearly no suggestion to introduce these materials into a toy gun that will be used to squirt liquids onto children.

Since Rende is directed to a toy squirt gun and Rauhaut is directed to a apparatus that contains corrosive chemicals, there is no motivation to have i introduced the chemiluminescence generating solutions of Rauhaut into the toy of Rende. It is not clear that simply ejecting the oxalate solution and hydrogen peroxide solution from the nozzles of the Rende device and having the streams of chemicals combine would even generate chemiluminescence or substantial chemiluminescence. Furthermore, hydrogen peroxides or other hydroperoxides are not chemicals that the ordinarily skilled artisan would consider suitable for use in toys, particularly toys in which a streams of the peroxide is going to be ejected from the toy gun prior to reacting.

Therefore, there is not motivation to have combined the teachings of the references.

The combination of teachings of the cited references does not result in the instantly claimed novelty combinations

Notwithstanding the lack of motivation to have combined the teachings, the combination of Rende and Rauhaut does not result in a novelty item that includes an article of manufacture and a bioluminescence generating system. The alleged admission in the specification that bioluminescence generating does not suggest that chemiluminescence generating systems are routinely substituted with bioluminescence generating systems nor that bioluminescence

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generating systems would generate sufficient signals or for sufficient time to be practical for use in novelty items.

Furthermore, there is no expectation that fluid streams mixing in the air would generate chemiluminescence nor that such fluid streams mixing in the air would generate bioluminescence. As taught in the specification, when used, the components of the bioluminescence generating systems are mixed either in single chamber apparatus prior to use or in a mixing chamber in the dual apparatus.

Notwithstanding the failure of the combination of cited references to teach or suggest using bioluminescence in a novelty item, nowhere in the cited art does it teach or suggest that bioluminescence reactions produce light of sufficient intensity or duration to be used in a toy such as a squirt gun in which copious amounts of liquid are used. Analytical reactions are detected and observed by instrumentation. It was not a priori apparent that putting components of a bioluminescence generating system into a toy squirt gun, either in a single chamber or in a dual chamber gun with mixing chamber, would result in a reaction of sufficient duration and intensity to be visible for any period of time, particularly under the conditions in which the novelty items will be employed. Furthermore, the components of the bioluminescence generating reaction, unlike those used for chemiluminescence, are costly to produce in large quantities

Even assuming *arguendo* (but not conceding) that the Examiner's unsupported statement that "general knowledge in the art that bioluminescence is more versatile than chemiluminescence in that more colors are available and the intensity of the light is more easily regulatable" has merit, it does not provide the suggestion to substitute introduce a bioluminescence generating system into a toy gun. Rende mentions neither chemiluminescence nor bioluminescence; and Rauhaut does not suggest that chemiluminescence is not

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versatile and/or lacks intensity. There is no suggestion to have used the toy gun of Rende in combination with a bioluminescence generating system.

The only suggestion to do so comes from the application at issue, and reliance on such suggestion requires the resorting to the improper use of hindsight.

Therefore, the Examiner has failed to set forth a prima facie case of obviousness.

DECLARATION

An unexecuted DECLARATION under 37 C.F.R. §1.132 is submitted herewith with a 7 minute videotape exhibit. The executed DECLARATION with a computer readable video clip of the relevant portion of the tape will be submitted under separate cover. The tape was prepared in connection with a presentation to a toy company prepared by Dr. Bryan. The portion of the tape that is relevant herein is the very beginning, which introduces Dr. Bruce Bryan and then a portion about 3 minutes into the tape, which shows Dr. Bruce Bryan squirting bioluminescent fluid all over himself including into his mouth and eyes in the presence of a group of children. The brightness and intensity of the fluid and the reaction of the children evidences unexpected results. It is not a priori clear that the light generated by bioluminescence when mixed together in a squirt gun would be bright enough to entertain. It is clear from the squeals of the children that this is entertaining. The tape also shows that the material is benign (Dr. Bryan ingested a fair amount and he was not harmed).

The combination of Rende and Rauhaut and alleged admissions and the general knowledge of the ordinary skilled artisan does not teach or suggest that bioluminescence would be so bright and would work as well as it does in a novelty item.

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Claims 60-63, 74-79, 139 and 149

Claims 60-63, 74-79, 139 and 149 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rende in view of Rauhut and applicant's prior art admissions as applied to claims 1-8, 35-38, 42-44, 51-59, 64-73, 134, 135, 147, 148, 160-176, 183 and 184 above, and further in view of Greene because Greene allegedly teaches use of a compressed gas cylinder to expel fluids from a gun. The Examiner concludes that this shows that it is conventional to use compressed gas cartridges in guns that shoot fluids. It is considered to be well within the ordinary level of skill in the toy gun art to adapt the concept taught by Greene to any desired configuration, absent evidence to the contrary. This rejection is respectfully traversed insofar as it applies to the pending claims.

Greene teaches a fluid gun that projects a stream of fluid under pressure for use by "guards of reformatories or penitentiaries, or animal keepers, for the purpose of subduing a riotous prisoner or vicious animal". The effect of the gas gun is to produce a "nauseating vapor".

As discussed above, the combination of teachings of Rende in view of Rauhut and applicant's alleged prior art admissions does not result in a novelty item that comprises an article of manufacture, such as a toy gun, and a bioluminescence generating system, since neither reference teaches or suggests such system, and the specification does not provide or admit to any art that provides such suggestion. Greene, although describing a gun that projects a fluid stream under pressure, does not teach or suggest combining a bioluminescence generating system with a toy gun. Its gun is for use in subduing animals and people, not entertaining them. Therefore, Greene does not cure the deficiencies in the teachings of Rende and Rauhut.

* * *

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In view of the above amendments and remarks, reconsideration and allowance of the application are respectfully requested.

Respectfully submitted,
HELLER EHRMAN WHITE & McAULIFFE

By: 

Stephanie Seidman
Registration No. 33,779

Attorney Docket No. 24729-105
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HELLER EHRMAN WHITE & McALLIFFE

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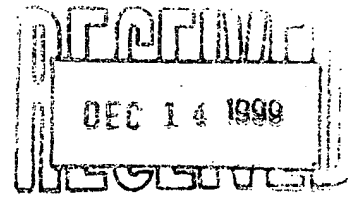
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December 13, 1999

VIA FEDERAL EXPRESS

MOORELAND & MOORE
2001 Jefferson Davis Highway
Suite 407
Arlington, VA 22202



Re: U.S. Patent Application No.08/597,274
BIOLUMINESCENT NOVELTY ITEMS
Our Docket No.: 24729-105

Gentlemen:

Please deliver the enclosed documents to Examiner Wax, Patent Office Group Art Unit 1652 on Tuesday December 14, 1999. In addition, please have the enclosed postcard date-stamped by the PTO and returned to us at your earliest convenience. We would also appreciate receiving a confirmation from you indicating that delivery of the enclosed documents has been made.

Thank you for your assistance in this matter. If you have any questions, please do not hesitate to contact our office.

Sincerely,

Stephanie L. Seidman

SLS/kh
Enclosure

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bryan, B.

Serial No.: 08/597,274

Filed: February 6, 1996

For: *BIOLUMINESCENT NOVELTY
ITEMS*

Art Unit: 1652

Examiner: Wax, R.

PETITION UNDER 37 C.F.R. §1.91

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This Petition is being filed under 37 C.F.R. §1.91 to request consideration of the attached exhibits.

REMARKS

As noted in the accompanying response, attached hereto is a squirt gun containing a bioluminescence generating system sold by Prolume, Inc. Dr. Bruce Bryan the inventor of the above-captioned application is CEO of Prolume and has licensed this technology to Prolume, requested that the undersigned provide the attached exhibit to the Examiner.

Although not believed by the undersigned to be essential for a demonstration of patentability of the novelty items of the above-captioned application, the exhibits are submitted to demonstrate that difference between chemiluminescence and bioluminescence, and marked superiority of bioluminescence for use in toys, and should aid in reaching a conclusion of the patentability of combinations of novelty items and a bioluminescence generating system or a component thereof.

In addition, the exhibit demonstrates that bioluminescence, which had heretofore only been used under controlled laboratory conditions, can be used in

U.S.S.N. 08/597,274
BRYAN
PETITION 37 C.F.R. §1.91

novelty items. It glows bright enough and long enough to provide entertainment.

Attention is also directed to Dr. Bryan's website on which these guns are being sold for about \$5.00 each. Given the previous high cost for luciferases, there is no suggestion in the art that such material could be manufactured in a sufficient quantity to be used in a toy.

The fee for this Petition may be charged to Deposit Account No. 08-1641.

* * *

In view of the above remarks, entry of the exhibits into the file history of the application is respectfully requested.

Respectfully submitted,
HELLER EHRMAN WHITE & McAULIFFE

By: 
Stephanie Seidman
Registration No. 33,779

December 13, 1999
Attorney Docket No. 24729-105
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bryan, B.

Serial No.: 08/597,274

Filed: February 6, 1996

For: *BIOLUMINESCENT NOVELTY
ITEMS*

Art Unit: 1652

Examiner: Wax, R.

ATTACHMENTS

1. A Biotoy Squirt gun containing a bioluminescence generating system;
2. A safety light, containing a chemiluminescence generating system.
3. A Petition, with authorization to charge Deposit Account No. 08-1641 for the requisite fee, for consideration of the attached exhibits.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bryan, B.

Serial No.: 08/597,274

Filed: February 6, 1996

For: *BIOLUMINESCENT NOVELTY
ITEMS*

Art Unit: 1652

Examiner: Wax, R.

SUPPLEMENTAL RESPONSE

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Supplemental to the Response mailed October 28, 1999, the Amendment and Response, mailed October 21, 1999 and responsive to the Office Action, mailed, April 21, 1999, consideration of the following remarks and review of the attached exhibits are respectfully requested.

REMARKS

Any fees, including the fee for a Petition, that may be due in connection with filing this paper or with this application may be charged to Deposit Account No. 08-1461. If a Petition for extension of time is required, this paper is to be considered such Petition, and any fee charged to Deposit Account No. 08-1641.

Claims 1-8, 23, 34-38, 42-44, 49-57, 60, 70, 73-79, 160-196 are presently pending in this application. Attached hereto is a squirt gun containing a bioluminescence generating system sold by Prolume, Inc. Dr. Bruce Bryan the inventor of the above-captioned application is CEO of Prolume and has licensed this technology to Prolume. Dr. Bryan requested that the undersigned provide the attached exhibits to the Examiner.

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BRYAN
SUPPLEMENTAL RESPONSE

Also, attached hereto, is a lightstick of the type described in Rahaut (U.S. Patent No. 3,584,211). The lightstick is designed to provide light, such as in the event of emergencies, and are provided by hotels, for example, for such purpose. It is not a novelty item. The chemiluminescent light is obtained by the reaction of the hydrogen peroxide of the activator solution with the chemiluminescent composition which comprises the oxalate fluorescer and catalyst. Bending the flexible, light-transmitting outer tube containing one chemiluminescent component breaks a frangible inner container holding second component, allowing the substances to react, but to remain sealed inside the outer container. The packaging states that contact with the skin should be avoided, and that the contents will stain.

There is no suggestion in the cited patent, nor other such patents directed to lightsticks, to put the components into a squirt gun, nor is there a further suggestion in any art of record to substitute a bioluminescence generating system for the chemiluminescence generating system. There is no suggestion in the art of record to use bioluminescence in novelty items.

Attention is also directed to Dr. Bryan's website: www.Biotoy.com, and also to www.Prolume.com.

These items have been hand-carried to the Examiner to avoid damage in the mail or loss by the PTO. The Examiner is invited to test the squirt gun.

Teachings of the cited references and differences from the instant claims

Rende (U.S. Patent No. 4,765,510) describes a fluid discharging gun containing multiple chambers that is capable of dispensing fluids in streams of different colors and that has nozzles arranged so that the streams merge and collide outside the gun. As noted previously, the gun includes a trigger that forces fluid under pressure from the chambers, through conduits and out of the nozzles to form a plurality of fluid streams that intersect at a defined point outside the toy gun allowing the fluids to mix. At col. 2, lines 14-20, noted by the Examiner Rende states:

U.S.S.N. 08/597,274
BRYAN
SUPPLEMENTAL RESPONSE

the invention is applicable to dispensing fluids having different colors or characteristics other than colors, the characteristics being such that combining the fluids causes a chemical or physical interaction and a change in the resulting blend.

Rende and the noted language, does not suggest that the momentary interaction of the two streams of fluid would be sufficient for any chemical reaction, and particularly a an enzymatically catalyzed bioluminescence generating reaction.

Rende does not teach or suggest including components of a bioluminescence generating system in the gun, nor modifying the design of the toy gun such that the components would mix and react to produce bioluminescence.

Applicant's alleged admissions

The specification teaches that bioluminescence generating systems are known. The specification also teaches that these systems are typically used in analytical applications, such in diagnostic assays. Nowhere in the specification does it suggest that the use of bioluminescence for generating light is known nor its use in toys nor is there any suggestion that it would be suitable for such use.

Examiner's statements of general knowledge in the art

The Examiner states that

[f]urther motivation is provided by general knowledge in the art that bioluminescence is more versatile than chemiluminescence in that more colors are available and the intensity of the light is more easily regulatable.

No support for this allegation is provided. MPEP 2144.03 states:

The Examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art. In re Ahlert, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). . . .

The properties ascribed by the Examiner to bioluminescence are not "capable of instant and unquestionable demonstration as being "well-known" in the art.

U.S.S.N. 08/597,274
BRYAN
SUPPLEMENTAL RESPONSE

MPEP 2144.03 continues:

If justified, the examiner should not be obliged to spend time to produce documentary proof. If the knowledge is of such notorious character that official notice can be taken, it is sufficient so to state. In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942). If the applicant traverses such an assertion the examiner should cite a reference in support of his or her position.

In this instance, knowledge about the properties of bioluminescence are not of such notorious character that official notice can be taken. Furthermore, bioluminescence and its use are of a more esoteric nature, since it is used in analytical applications as reporters. For esoteric technology, MPEP 2144.03 states:

("[A]ssertions of technical facts in areas of esoteric technology must always be supported by citation of some reference work" and "allegations concerning specific 'knowledge' of the prior art, which might be peculiar to a particular art should also be supported." Furthermore the applicant must be given the opportunity to challenge the correctness of such assertions and allegations. **"The facts so noticed serve to 'fill the gaps' which might exist in the evidentiary showing" and should not comprise the principle evidence upon which a rejection is based.**). See also In re Barr, 444 F.2d 588, 170 USPQ 330 (CCPA 1971) (scientific journal references were not used as a basis for taking judicial notice that controverted phrases were art-recognized because the court was not sure that the meaning of the term at issue was indisputable among reasonable men); and In re Eynde, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of [judicial] notice.").

The Examiner is taking judicial notice of an allegation, which forms provides the link between the prior art citations, which do not mention bioluminescence and the motivation to use it.

As discussed in the previous responses, the Examiner has failed to set forth a prima facie case of obviousness. There is no suggestion in Rahaut to modify the gun of Rende and employ chemiluminescence in the toy gun of Rende. As discussed previously, the caustic reagents used to generate chemiluminescence are not those that the ordinarily skilled artisan would put

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into a toy squirt gun. Hence, there would have been no motivation to have substituted the chemiluminescent reagents for the colored fluids exemplified in Rende. Furthermore, there is no evidence that the gun of Rende, in which the fluid streams cross in the air, would even work to generate chemiluminescence.

Notwithstanding this, there is no suggestion to then substitute bioluminescence generating reagents for the chemiluminescent reagents. In addition, there is no evidence in the cited art that bioluminescence generating reagents, which have been used for analytical purposes could be used under the crude field conditions that toys are used. For analytical reactions, the conditions are carefully controlled; whereas, in a toy, the water used will not be ultra pure, the temperature will not be controlled, the amounts of reagents will not be carefully weighed and introduced with care, the pH and salt concentrations will not be carefully controlled and so on. Hence, there is no evidence that bioluminescence could be generated in an amount suitable to produce a novelty item. The video clearly shows that the bioluminescence generated is sustained and bright and does not require carefully controlled conditions. Therefore the Examiner has failed to set forth a prima facie case of obviousness.

The inventor, Dr. Bruce Bryan, requested that the attached exhibits be made of record in the application. A review of the instructions on each, highlights the differences between bioluminescence and chemiluminescence.

First, it is apparent that the lightstick is not a toy, but is designed to provide light in an emergency. It states on the wrapper that the tube should not be punctured and contact with the ingredients should be avoided.

In contrast, the squirt gun ejects the fluids, which glow. The video shows Dr. Bryan actually shooting them into his mouth and getting the material on his eyes. The lightstick cautions against skin or eye contact; whereas, the squirt gun will result in skin contact with the material.

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Second, there is nothing in the cited patents, that would have led the ordinarily skill artisan to have substituted bioluminescence, which typically glows for minutes, for chemiluminescence, which can provide sustained light.

* * *

In view of the above remarks, and the amendments and remarks set forth in the responses, mailed October 21, 1999 and October 28, 1999, reconsideration and allowance of the application are respectfully requested.

Respectfully submitted,
HELLER EHRMAN WHITE & McAULIFFE

By:


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December 13, 1999
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bryan, B.
Serial No.: 08/597,274
Filed: February 6, 1996
For: *BIOLUMINESCENT NOVELTY
ITEMS*
Art Unit: 1652
Examiner: Wax, R.

TRANSMITTAL LETTER

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Transmitted herewith is a Supplemental Response, BioToy squirt gun, safety light and Petition for filing in connection with the above-identified application. If it is determined that a fee for filing these papers is required, the Commissioner is authorized to charge Deposit Account No. 08-1641, as stated below:

(X) The Commissioner is hereby authorized to charge any fees that may be due under 37 C.F.R. §§1.16-1.17 in connection with this paper or with this application during its entire pendency to Deposit Account No. 08-1641. A duplicate of this sheet is enclosed.

Respectfully submitted,
HELLER EHRMAN WHITE & McAULIFFE

By: 

Stephanie Seidman
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